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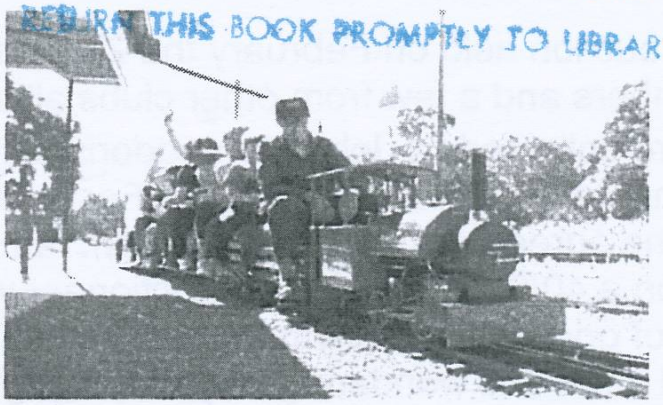

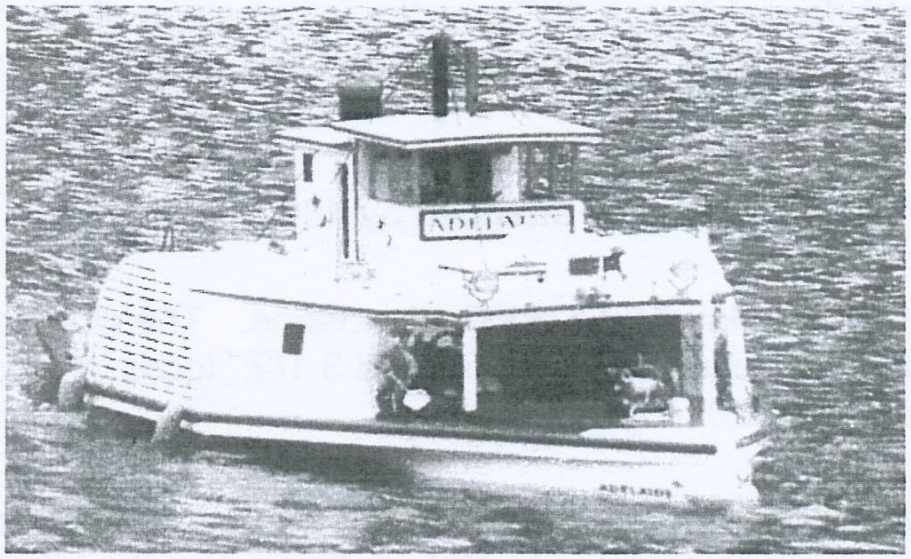

JULY 2016

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(This bulletin is issued for information only}

Happenings

The field day of February 6th was the best for a long time. Plenty of locos on both tracks including the garden railway. The highlight of the boat pond was the first sailing of Allen Saunders HMS Cadiz. It had its first showing at the last show of work. An impressive sight.

Saturday the 20th was quiet due to other sundry events .Several parties and a good rollup of support with 52 SASMEE members signing on.

Sunday, 6th March was cancelled due to the hot weather of 39c.

The Peckham auction held on February the 27th attracted members SASMEE members and a few from other clubs all showing interest. The goods were collected by John Monteodorisio, Jeff Schaefer, Bryan Homann, Malcolm Ambler and John Foster who prepared for the auction. The agreement with the Peckham family was a sharing of the proceeds on a 40/60% ratio. The auctioneer was Ian Thomas who disposed of goods with many members collecting some good purchases and a few still wondering why they bought them!!.

Public field day of March 18th saw the introduction of the recently purchased diesel from the Morphett Vale Club. It performed well with 3 cars.

Saturday the 16th was well attended by 400 patrons and 41members.

Sunday the 1st of May saw a good attendance. The club produced 11 boats, 3 off 71/4" locos and 5 off 5"" and 3 1/2:" locos. Patrons numbered some 520. A good day.

The field day of Sunday June 6th was cold and wet and windy. The paying customers were down to 130. It cleared for the afternoon so we ended up with five 5" locos and the 2 club 7 ¼' locos being driven by Jackie Monteodorisio and Toni Offler. Great work by the ladies.

Public field day of Saturday 18th June brought a sunny break in a cold and wet week. 400 patrons supported by 14 locos [all gauges and 11 boats.

Lithium Polymer (LiPo Batteries)

These batteries are used by our boaties but not yet by the train members mainly because they are light and expensive in the sizes required for trains. However, they have some very useful characteristics; they have a high charge density hence light weight for their capacity, allow a very high discharge rate, and have a constant voltage supply until the reach their discharge limit. They also have a few nasty characteristics in that if they are poorly handled, overheated, shorted or charged at too high a rate they can cause fires. They are not toys and at least one house fire and the spate of fires with the so-called 'Hover Boards' given a Christmas presents attest to this. However, charged on chargers designed for LiPo batteries at the recommended rate they are quite safe if all manufacturers' recommendations are followed. These are:

- Charge LiPo batteries on a charger design for them,
- Charge at the recommender rate,
- Do not overcharge, (Good chargers cut off at the rated value).
- Always charge on a non flammable surface (not in your model), concrete floor of the workshop away from flammable material is good,
- Do not leave charging batteries unattended,
- Do not short the battery leads, the batteries immediately overheat swell and may catch fire. If shorting occurs place them on a non flammable surface and stand clear for at least 15 minutes,
- Do not leave them in your car on a hot day or a sunny window sill.

These tips may seem onerous as we all have LiPo batteries in tools, phones and tablets etc. In these applications they have built-in or specific chargers. However, if you read the fine print of your device you will find most of the above tips. To modellers the problems arise because we buy stand alone batteries. If you use LiPos buy a good LiPo charger.

Contd.

One final point LiPo batteries deliver constant voltage to point when voltage drops to virtually zero. Batteries where the cells are allowed to get below 2.7 volts per cell cannot be recharged. This feature can be avoided by using quality electronic speed controls which have a feature which shuts down the model or reduces current draw once a preset limit is reached. On the Internet you will find all sorts of ways to overcome the difficulty of over discharged LiPo batteries. ALL ARE DANGEROUS. Do not be tempted to save a few dollars.

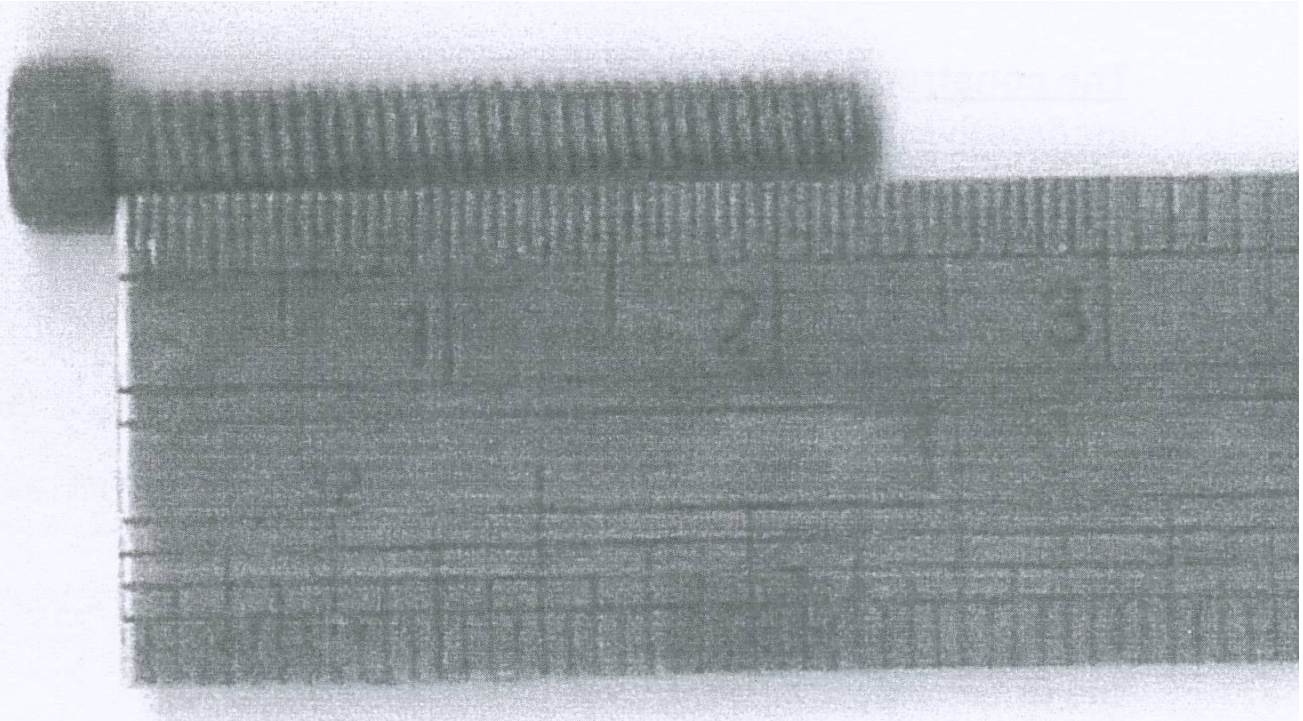
The above is just touches the surface of LiPo batteries, see Model Boats December 2015 or http://www.rchelicopterfun.com/rc-LiPo-batteries.htm for full information on construction charge rates etc.

High Tech Tooling

Recently while building paddlewheels for a paddle steamer I had to attach the paddles with 64 M2 bolts and nuts. With the nuts on the inside of the wheels fingers proved useless and long nose pliers not much better. Final solution was a paddle pop stick with a piece of double sided tape. Place the nut on the tape and offer up to the bolt.

Identifying Threads.

While refurbishing an old steam engine model I needed to identify the screws used in the assembly. The drawings I had said 7BA but that was obviously not what had been used. Measurement indicated 1/8" but were the BSF, ME or NF. Not having suitable thread gauges I attempted to count threads. I could not be confident with the result. The solution I used was to scan one of the bolts and a 6" steel rule on the computer scanner as shown below and blow the picture up on the computer screen until counting the threads was easy.



Notes from History

Over Christmas John Monteodorisio was reading a copy of Model Engineer 15 November 1965 and found an article entitled Australia's New Track which detailed development of SASMEE park to that time. A few excerpts amke interesting reading. Excerpts have been paraphrased for brevity.

The variation of the Societies' lease in 1960 allowed increase its present (1965) size. The first track of 520 yards has been replaced with a new one of 1602 yards. After 3 years of unceasing toil by members all was ready for the official opening by Mr. Schaumlofld locomotive Suprentindent SAR.

The Girder Bridge cost 900 pound ($1800) in material which was met by club funds.

The round pond was built by members in 1957 to international standards with concrete sides and an asphalt bottom. A water bill of 25 pound ($50) does not seem excessive.

The construction of a R3 Compound Road locomotive.

Article by Peter Hoye.

The first live steam model I built was a 3" scale Burrell agricultural Traction Engine, to a design published by H.R. Plastow. Drawings and castings were ordered from Suffolk, England in 1981. Completion of the engine was in 1983.

That engine travelled extensively to functions all over the State, often accompanied by SASMEE member, the late Brian Nietsche. The Burrell even took a trip to Melbourne on the back of the Overland train, not in steam of course. The engine with 2 riding cars was a regular performer for several years, at Railway Park. Being early days for these types of models, I made up my own rules to run in a public environment. It seems regrettable that road and rail "live steam" models, are so segregated these days

Immediately my thoughts turned to what next. In the 80"s there was not the choice we have today, plus no Internet. Plastow's had a 3" compound road loco available, so I obtained the drawings for that in 1984.

So what is a road loco, you may well ask? Basically a traction engine, these engines were built for road work and heavy haulage. To facilitate dealing with such big job's four shafts and three speed's were the norm. Solid flywheels and motion covers were fitted , so as not to frighten horses that were still in common use. Belly tanks fitted increased water capacity, thus reducing the

number of water stops on the journey. Time is money. Invariably the engines were rubber shod to minimise noise and damage to road surfaces. Fodens fitted rear axle springs on some engines.

They were the Rolls Royce engines off the road steam age, massive, powerful and completely awesome in action. Heavy hauliers found numerous uses for them, ranging from transformer shifting to locomotive delivery. Its quite possible RX207 left the Nth British locomotive Works behind Bodicea and Lord Roberts , on its way to the Glasgow Docks enroute to Pt Adelaide. By virtue of their sheer power, they were often named after British and other world heroes such as Atlas.

Showmen used them to special order, having them equipped with a perch bracket fitted to the smokebox. On this a dynamo would be fitted driven by belt from the flywheel. If the Showman wanted an exciter hooked to the dynamo, he would have to order his engine from Burrell"s. That company built road loco's with longer boilers, which allowed more space between the chimney and cylinder block. The exciters purpose was to provide extra power to get the heavier rides underway. As a child I did wonder why certain rides like the whales and dolphins, the cars you sat in never actually stopped moving, while you got on and off. Show engines also had full length decorated canopies, supported by brass Olivers, made from twisted square bar. Get it!? Generous polished oil cups on all journals and big ends, completed a very memorable sight and experience never to be forgotten.

Construction began by rolling up flat bar into rings, for both front and back wheels. Inside rings were cut out off 6mm plate and welded in, to produce four wheel rims. A Wingfield company galvanised rubber tyres on these rings and the whole lot put in a lathe and the rubber machined to correct profile. The four hubs were fabricated from solid and machined to take bronze bearings and also the slots for the spokes. The spokes were cut out by hand on a band saw and finished by hand filing! The whole lot assembled with screws and Araldite, in a basic jig.

Such items would these days be produced by Laser cutting. Old hands like me were taught as apprentices, how to use basic hand tools and skills. I still use a vast array of files etc in my workshop. I commenced my trade with the giant Unilever Corporation and dispatched to their training Centre near Liverpool, Cheshire, UK. One task was to straighten up a 1" steel block, with a 2 pound hammer and chisel. Most ended up with bandaged left hands, but we got there! But it was a different era then. No standing around texting in those days.

The smoke box was made from an oxy cylinder, the right size. Chimney with brass cap, perch bracket axle and so forth, completed the front end. I have always felt it best to complete a unit , which can then be displayed and also give motivation to complete the project. So many models have ended up a pile of bits, under the bench in the "to hard basket"! Gear blanks were also done, machining of the teeth done by an old chap off Holbrooks Rd.

Due to its design and shape the flywheel was somewhat tricky. In the end I opted to make it from 2 big chunks of steel. The outer rim and web, then the bulged hub were both roughed out. Then put together and stick welded. Final machining was carried out on an old flat bed lathe, much like its bigger cousins no doubt. The reason Fowlers made the flywheels with a bulge was to accommodate the top gear pinion, when that pinion is out of mesh. It simply was not possible to fit three speeds in the horn plates, given that each pinion has to have room to move to.

In the late 80's I was fortunate to be able to access 1.5mm 316 stainless steel plate, ideal for the tender. Well it's not going to rust, is it? Unlike a locomotive tender it has a number of different attachments that need to be correctly placed These are the reverser, hand brake, towbar, cable guide rollers, water pump, boiler feed fittings, access steps, etc. If you wonder where a cable comes into it, most road locomotives were fitted with a winding drum. Many an engine was put to work, pulling down bombed out buildings after the war, in the UK. Showmen used the winch with a jib mounted on the tender, to lift the heavy passenger cars onto the rides.

Unlike a locomotive, the boiler for a traction/road engine requires a high degree of accuracy and workmanship. The boiler on a loco just has to sit on the frame and make steam. On the traction engine it is the chassis, as well as the support bed for the engine itself. I had a chap bring a copper boiler being built, for a 1 ½" Alchin traction engine. The boiler barrel and outer wrapper had been assembled and fully welded. When I sighted down

the boiler the barrel was not in line with the outer wrapper. The conrod bigend would be way out with the crankshaft journal , unless you put a bend in the conrod! The assembly got binned. One departure from convention was to instal a hollow stay, so as to have control of the blower from the footplate. My Burrel TE did a lot of street parade work, in the eighties. Those parades would often be stop/start affairs and I always thought how it would be handy to have better control of the blower. The late Peter Bucknell of Moorabin used that idea as well.

It was about this time in 2002 that I was able to assemble most parts so far. And with all wheels on , simply enjoyed pushing it in and out the workshop. There was still a long way to go.

As a live steam model engineer who has built 2 road engines and 2 locomotives, I would say the former are the most demanding for accuracy. The hornplates which carry all the driving shafts must be right, not near enough. The crankshaft I fabricated, complete with 4 keyways per driving pinion. Being a 4 shaft engine with 3 speeds, there are 3 driving pinions and when you add 5 eccentrics plus sheaves, plus the bigend and 3 lots of speed change leavers, it gets a bit crowded! There was scope for a bit off here and there, to get everything to run nicely.

There are only 4 castings, 3 name plates on the smokebox door. The 4th is the main cylinder block. I was fortunate to obtain a pattern from an ILS member, (thanks Tom). Beverly Foundry did a marvellous casting, no blow holes at all. Remember, it's a compound engine

with 2 cylinders, 1 high pressure, 1 low pressure. Ie steam goes into the high cylinder as usual, then instead of chuffing up the stack, it goes into the low side, does further work, then goes up the spout. This "Dual" system was very popular with stingy British owners, as there were considerable savings in fuel and water usage.

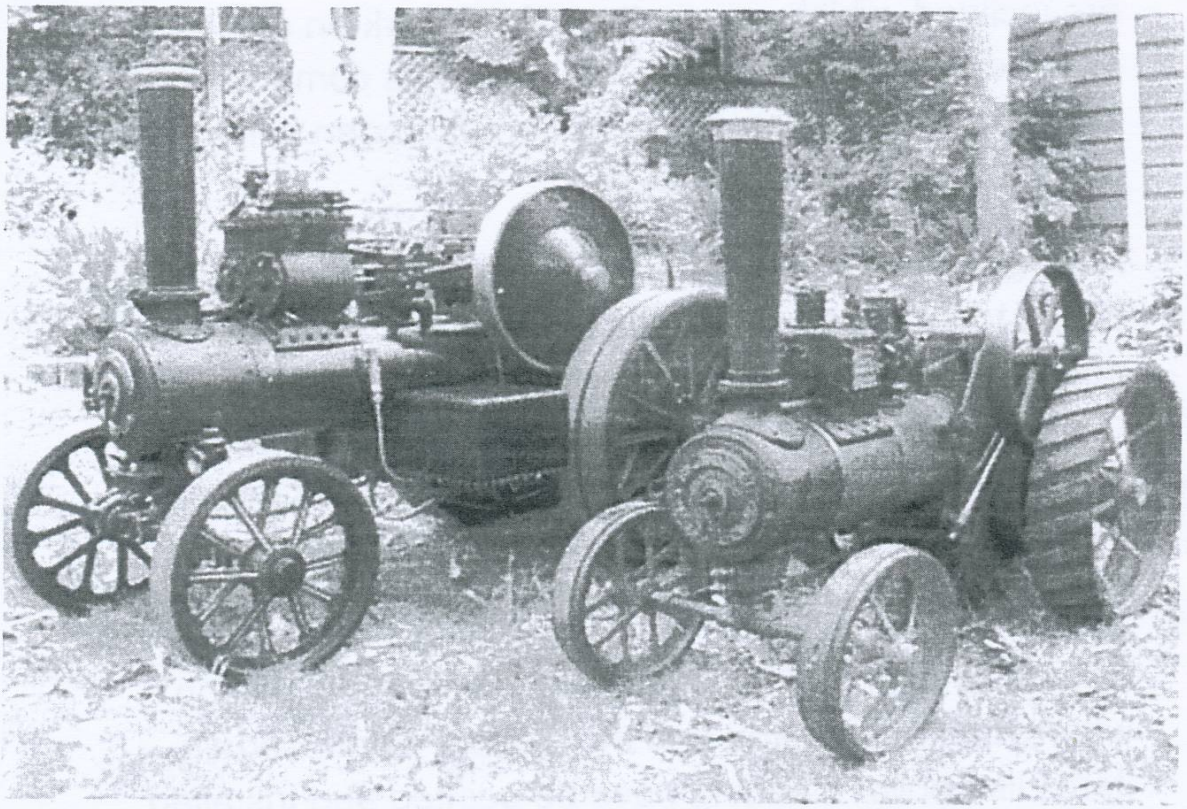
Setting the valves can be tricky, especially on a 4 shaft engine. I had to re-adjust my brain from the 3 shaft Burrell, as on a 4 shaft engine the flywheel goes "backwards". Which means you get oil flicked in your face if you get too carried away with the oil can. Just make sure your bigend oil cups have screw on caps. Instead of 2 eccentrics you have 4 to set up. On top of that you have to set up the valve gear so the high valve exhausts just as the low valve arrives opening to receive the high valves steam. Otherwise it just will not move! The sharp eyed will see that the 2 valve stems are inclined, which means the valves work on an inclined valve plate. If you want to build a compound TE then choose a Foden not a Fowler, as Foden valve chest's are more accessible.

Another challenge was the wayshaft bracket which I chose to fabricate. This bolts to the boiler at the precise position for the 4 expansion links to describe their respective arcs. It also must support the valve stems that are on an angle. Constantly its wise to ponder each move you make, rather than do it all again. So much to think about all the time.

Sooner or later you reach a point in your construction, when you have to stop and think about paint. Certain items like boiler cladding have be painted and installed,

other wise they get left behind. It is hard to imagine how many parts have to be made. Of course you simply will never know. Around 2010 the Fowler was beginning to look the part. Since 1985 I built Three 5" locos, plus about twenty items of rolling stock, some highly detailed. At Prospect I put down a 5" garden railway with numerous sidings, which was relocated to here at Gawler , 2007.

The next 5 years, the Fowler shared my time with the establishment of a 45mm garden railway around the house. March 2015. saw the first fire lit, 30 years after construction commenced. Despite having to effect some modifications and get the valve gear totally right. It is a joy to watch all that "stuff" moving around, between the horn plates. Yes it has a simpling valve, which makes starting the engine much easier. Try flicking the flywheel over on the real thing!



Garden Railway

Second article by Max Shuard

Motive Power.

There are three main types of providing to locomotives.

Steam. Steam powered gauge 1 locomotives have become very popular in recent years with the production of many off the shelf steam powered locomotives. Historically, Mentholated Spirits burners with either multiple flue boilers or pot boilers have been the main method of heating the boiler. The most popular type these days is single flue boilers with a butane gas burner. This is clean, efficient and easy to use. It also enables radio control of the regulator and reverser.

Track Power. At SASMEE, both mainline tracks are set up for track power. At present, only 12 v DC is available on both O and 1 Gauge tracks. This is suitable for most cheap track power locomotives, such as Bachmann. The main disadvantage with this system is that it does not allow for individual locomotive control with multiple locomotives on the one track as Digital Command Control (DCC) enables. DCC is AC based track power, with a controller in each locomotive. The difference is that with DC, the track power controls and powers the locomotive. With AC the track current powers the locomotive only. The DCC actually controls the locomotive. Track power requires specialist turnouts, to enable power to be transmitted without short circuiting the turnout rail.

Battery. Battery power is probably the most widespread source of power for garden railways. It allows locomotives to be controlled individually and gives the greatest flexibility. It is possible the most compatible with radio control as the power source fro the radio receiver is already on the locomotive.

There is one other type of power – clockwork. This is generally very specialist and good clockwork mechanisms are hard to come by. Historic models are the main area for this type of power.

American Steam Locomotive Manufacturing in the 1920`s.

By the Editor.

The Americans are noted for being large and impressive and no more so in the building of large steam locos such as the mighty Erie Triplex 2-8-8-8-2 built by Baldwin in 1914. It weighed in at 860,350 lbs [385tons]. Including the tender.

Such projects required large well equipped factories. As an example the Illinois Central Locomotive shops at Paducah in Kentucky. The main building was some 245ft wide by 681ft long. It serviced 25 engine pits, spaced at 24ft centres.

Contained within the complex were departments specifically dedicated to a processing function e.g. general machining, brass , rods, motion, boilers, tender shop and carpenter etc. The departments had their own facilities to be able to complete a process rather than move it to another section which may have the tools required.
The general machine shop of the Illinois works had a total of 339 machines of varying sizes and functions. The largest machines being 3off frame side planers with capacities of 84'x 36" x40ft bed lengths. These were powered by 75hp DC motors. The above numbers does not include any of the other function departments tools. Lifting capacity ranged up to 15tons.

The introduction of casting one piece locomotive frames, sometimes with the cylinders integral with the frames were known as the Commonwealth one piece bed. The moulding and casting required extremely high skill levels of manpower and technical expertise.
A typical frame for a 2-8-2 Mikado was 30.5ft long. The material used was a low carbon nickel steel [2% typical] The tensile strength of the nickel iron was in the order of 79,400lb per square inch compared with a carbon steel frame of 78,000. Heat-treatment was required with straightening being carried out by a 400ton press.

The Illinois facility one only one of many across the States as indicated, that between 1913 to1929 locomotives built in the U.S. of A. for domestic, Canada and o/seas markets numbered 36,732 units.
[Article compiled from the Locomotive Cyclopaedia of 1930.]

Other Things. By the Editor.

Silver Solder Retardant. Silver solder running into areas other than where we want it is not only a waste but usually stands out due to its colour. To contain solder, the use of a retardant or "bund" of some sort is necessary. I have found "Correction Fluid" which comes with a small applicator is very good. Marking Blue painted inside copper tubing stops the solder from running up the tube when attaching small fittings and the application of a soft pencil drawn around the area acts quite well. In all cases the retardant is applied prior to heating the unit.

SASMEE Library.

Did you know that our library currently has, 806 numbered books, complete bound volumes, from number 1 of, the Model Engineer, Engineering in Miniature ,Model Engineers Workshop, Model Boats, The Australian Model Engineer, Live Stream, Locomotives Large and Small, The Model Ship Wright, English Mechanic and 19 copies of Warship. As copies of magazines come to hand our head librarian Jack Davey, ensures their published sequence and organises the binding on a yearly basis. Currently there are also some 67 videos that can be borrowed and a massive amount of plans and prints of both full size and project material that whilst not catalogued, can be borrowed if located. Speak to the librarians. Loaning is on an honour system of recorded members. You will be followed up if loan time is thought to be excessive. There is information available on all things we as a club enjoy. Its` there for the asking.

Hobby Supplies.

From a mechanical purchasing viewpoint I have had very good results/service from the following, for an extensive range of tooling it is worth looking at, Tracey Tools Ltd. They are based in Devon in the UK. Google www.tracytools.com. They trade in good brands such as Goliath and have a no minimum order/same day dispatch. See Bill Coles for a copy of their catalogue.

Closer to home for Copper, Brass, Bronze, Alloys etc one can`t beat Surman Metals. They are at Greenfields Drive, Green Fields. www.surmanmetals.com It is a fair drive for some members so I overcame the problem by phoning an order through, they will cost it for you on the spot. Then ask them to arrange a courier delivery. Cost to Brighton was $11.oo. Money well spent.

Usual disclaimer, no connections, only satisfaction. Bill Coles.

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